

ENVIRONMENTAL ASSESSMENT

LAKE BORGNE - MRGO SHORELINE PROTECTION PROJECT

ST BERNARD PARISH, LOUISIANA

EA #402

INTRODUCTION

The U.S. Army Corps of Engineers (USACE), New Orleans District (CEMVN) prepared Environmental Assessment #402 (EA #402) to evaluate the potential impacts associated with the proposed Lake Borgne – Mississippi River Gulf Outlet (MRGO) Shoreline Protection Project. EA #402 was prepared in accordance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation, ER 200-2-2.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to protect salt marsh from erosion, between Lake Borgne and the MRGO in the vicinity of Shell Beach and Hopedale. This project is a Coastal Wetland Planning, Protection and Restoration Act (CWPPRA) project and was selected for completion by the Louisiana Coastal Wetlands Conservation and Restoration Task Force. The action is needed because high-energy waves are eroding wetland habitat along the south shore of Lake Borgne and the north bank of the MRGO. Continued erosion along both shorelines could eventually result in the merging of Lake Borgne and the MRGO.

AUTHORITY FOR THE PROPOSED ACTION

The Coastal Wetlands Planning, Protection and Restoration Act (Public Law 101-646) authorized the proposed action and the local cost share is being provided from the State of Louisiana's Wetlands Conservation Trust Fund (LA. R.S. 49:213 et seq).

PRIOR REPORTS

Environmental Impact Statement: Operation and Maintenance Work on Three Navigation Projects in the Lake Borgne Vicinity, Louisiana, May 21, 1976.

Environmental Assessment #152: Mississippi River Gulf Outlet Bank Stabilization Miles 55.0 to 51.0. FONSI - November 21, 1991.

Reconnaissance Report: Mississippi River Gulf Outlet, St. Bernard Parish, Louisiana, Bank Erosion. January 1994.

Environmental Assessment #244: Mississippi River Gulf Outlet Disposal Area Marsh Protection, St. Bernard Parish, Louisiana. FONSI - July 30, 1996.

Environmental Assessment #247: Mississippi River Gulf Outlet Bank Stabilization Miles 55.0-56.1. FONSI - September 26, 1996

Environmental Assessment #255: Mississippi River Gulf Outlet, Wetland Creation, Miles 15.0-23.0. FONSI - February 12, 1997.

Environmental Assessment #269: Mississippi River Gulf Outlet, South of Lake Borgne, Additional Disposal Areas. FONSI - March 24, 1998.

Supplemental Environmental Assessment #269-A: Mississippi River Gulf Outlet, South of Lake Borgne, Additional Disposal Areas. FONSI - March 24, 1998.

Supplemental Environmental Assessment #269-B, Mississippi River Gulf Outlet, South of Lake Borgne, Additional Disposal Areas. FONSI - June 8, 2001.

Supplemental Environmental Assessment #269-C, Mississippi River Gulf Outlet, South of Lake Borgne, Additional Disposal Areas. FONSI - October 2, 2001.

Environmental Assessment #274: Mississippi River Gulf Outlet, Hopedale Marshes, Miles 36.7 to 32.0. FONSI - July 10, 1998.

Environmental Assessment #277: Mississippi River Gulf Outlet, Shell Beach Disposal Areas. FONSI - September 6, 2001.

Supplemental Environmental Assessment #277-A: Mississippi River Gulf Outlet, Shell Beach Disposal Areas. FONSI - October 2, 2001.

Environmental Assessment #288: Mississippi River Gulf Outlet, North Bank Stabilization, Miles 43.0 to 41.0. FONSI - April 16, 1999.

Environmental Assessment #294: Breton Island Restoration. FONSI - June 17, 1999.

Environmental Assessment #349: Mississippi River Gulf Outlet, Additional Disposal Area Hopedale Marsh, St. Bernard Parish, Louisiana. FONSI - August 15, 2002.

PUBLIC CONCERNS

Representatives of Federal and state agencies along with members of the public have expressed concern about the shoreline erosion rates along Lake Borgne and the MRGO. Concern is that any loss of marsh in these areas further imperils local residents should major storm events occur.

DESCRIPTION OF THE PROPOSED ACTION

Lake Borgne Breakwater: The proposed action is to place 18,820 linear feet of rock to form a breakwater along the southern shore of Lake Borgne (Figure 1). The breakwater would

start at the east bank of Doullut's Canal (Lat. 29° 51' 43" Long. 89° 39' 05") and proceed east to the south bank (Lat. 29° 52' 45" Long. 89° 35' 55") of Jahneke's Ditch. The breakwater

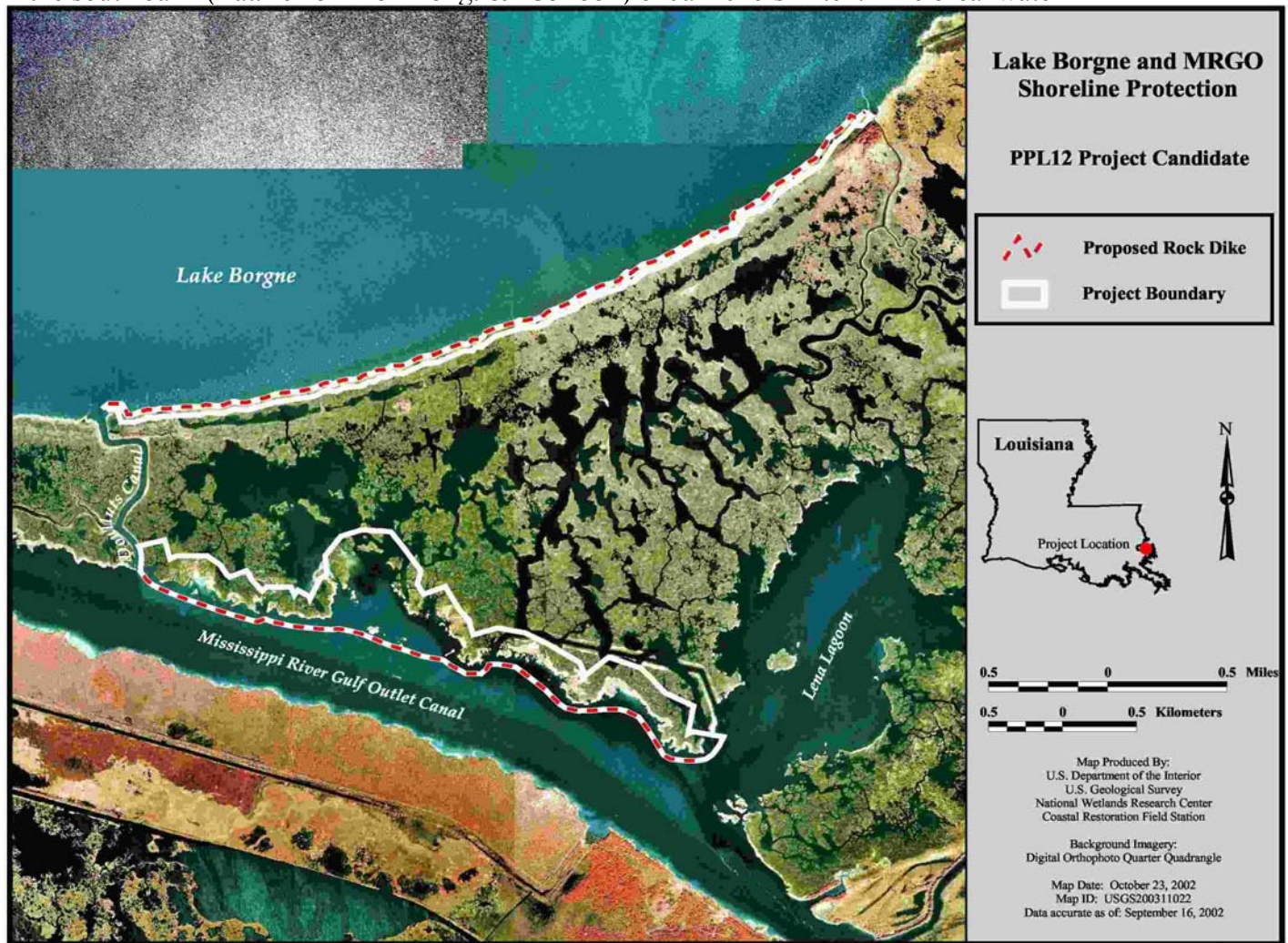


Figure 1. Lake Borgne-MRGO Project Location Map

would be situated offshore approximately at the -2 feet North American Vertical Datum 88 (NAVD88) contour. The breakwater crown would be built to an elevation of +4 feet NAVD88 during construction and raised to +5 feet NAVD88 in the first maintenance event. The rock breakwater would be 5 feet wide at the crown, 40 feet wide at the bottom, and have side slopes of 1V to 2H. The Lake Borgne breakwater would have a 3-foot deep layer of rocks placed on top of a crushed stone core resting on a layer of foundation geotextile. A separating layer of geotextile fabric would be placed between the rocks and crushed stone to prevent migration of fines, and reduce the long-term settlement of the breakwater section.

Using a bucket dredge, an 80-foot wide flotation channel would be dredged adjacent, parallel to and toward the waterside of the rock breakwaters as needed. The channel would be no closer than 40 feet to the toe of the breakwater. Maximum dredging depth for the flotation channel would be -7 feet NAVD88. Dredged material, 315,000 cubic yards, from the flotation channel would be placed to the landward side of the rock breakwater, and not closer than 10 feet

to the landside toe of the breakwater, or closer than 50 feet to the top of the bank. Dredged material will be stacked to a maximum height of +3.5 feet NAVD88 to facilitate wetland creation, at approximately +2 feet NAVD88. This disposal area may be used for future maintenance operations as well, with appropriate documentation and plans.

The access route that the construction barges would take to the floatation channel may require some dredging at its beginning, where it enters Lake Borgne from Bayou Yscloskey, and at its end, near mid point of the floatation channel. The maximum width of the access channel would be 100 feet and a maximum depth of -7 feet NAVD 88. The dredged material, 139,020 cubic yards, from the access channel would be temporarily disposed of adjacent to the access channel, unconfined, and would be replaced back into the channel after the breakwater construction was complete. The Bayou Yscloskey end of the access channel would require dredging dimensions of 100 feet wide by 2,000 feet long with disposal of this material occurring along the west side of the channel in a section 200 feet wide by 2,000 feet. The end of the access channel that connects to the floatation channel would require dredging dimensions of 100 feet wide by 1,000 feet long with disposal of this material occurring along the east side of the channel in a section 200 feet wide by 1,000 feet long. All dredging would be done with a bucket dredge. Conditions may arise that would require the reopening of this access route for future maintenance operations, provided conditions and regulatory requirements can be met.

MRGO Breakwater: A 14,360 linear feet rock breakwater is proposed to be constructed along the north bank of the MRGO starting at the east bank of Doullut's Canal (Lat. 29° 51' 07" Long. 89° 38' 55") and proceeding east to the west bank (Lat. 29° 50' 24" Long. 89° 36' 36") of the mouth of Lena Lagoon (Figure 1). The breakwater crown would be built to an elevation of +4 feet NAVD88 during construction and raised to +5 feet in subsequent maintenance events. The rock breakwater would be 5 feet wide at the crown, 40 feet wide at the bottom, and have side slopes of 1V to 2H. Work would be completed in three lifts, a construction lift and two operation and maintenance lifts, due to the excessive settlement expected with the poor soil conditions in the area. The MRGO breakwater would have a 3-foot deep layer of rocks placed on top of a crushed stone core resting on a layer of foundation geotextile. A separator geotextile fabric would be placed between the rocks and crushed stone to preserve the structural properties of the section and reduce long-term settlement of the breakwater section.

Using a bucket dredge, an 80-foot wide flotation channel would be dredged adjacent, parallel to and toward the waterside of the rock breakwaters as needed. The channel would be no closer than 60 feet to the toe of the breakwater. Maximum dredging depth for the flotation channel would be -7 feet NAVD88. Dredged material from the flotation channel would be placed to the landward side of the rock breakwater, and not closer than 10 feet to the landside toe of the breakwater, or closer than 50 feet to the top of the bank. Dredged material, approximately 189,000 cubic yards, will be stacked to a maximum height of +3.5 feet NAVD88 to facilitate wetland creation, at approximately +2 feet NAVD88. This disposal area may be used for future maintenance operations as well, with appropriate documentation and plans. Fish dips will be constructed in areas best suited to support the exchange of water and estuarine organisms. All natural bayous and tidal creeks would be left open to allow for organism and water exchange.

ALTERNATIVES TO THE PROPOSED ACTION

One alternative to the proposed action was considered. This alternative was: No-action.

No-Action. Under the No-Action alternative, the proposed action would not be constructed by the CEMVN. There would be no attempt to control or slow the rate of shoreline retreat or wetland loss along the southern shore of Lake Borgne or the north shore of the MRGO. Wave induced erosion would continue along the Lake Borgne shoreline at a rate of up to 9 feet/year (ft/yr). Prehistoric Native American middens and nationally significant archeological resources that occur along the Lake Borgne shoreline would be lost. Protected navigation within the federally authorized MRGO would continue to be impacted as the shoreline erodes and sediment is deposited into the channel. Wave induced erosion would continue along the MRGO shoreline at a rate of up to 24 ft/yr.

ENVIRONMENTAL SETTING

GENERAL

All of the project area is salt marsh except for minimal amounts of isolated bottomland scrub/shrub areas according to data through field trips to the area. Dominant vegetation is smooth cordgrass, leafy three square, seashore saltgrass, and marsh hay cordgrass. The lake rim consists of smooth cordgrass, marsh morning glory, eastern bacharis, and big cordgrass (hog cane).

The Lake Borgne shoreline project area consists of: 76 acres of salt marsh, four acres of interior water, and 20 acres of near shore water for a total of 100 acres (see photo at Figure 2). The project area was determined based upon projections made by CEMVN staff of what area would erode over 20 years plus a 50-foot wide band of near shore water extending into Lake Borgne, which is the area between the existing shoreline and the proposed rock breakwater.



Figure 2. Photo of Lake Borgne Shoreline

The MRGO shoreline project area contains: 173 acres of salt marsh and 192 acres of open water, for a total area of 365 acres (see photo at Figure 3). The project area was determined based upon projections made by CEMVN staff of what area would erode over the next 20 years. A shoreline erosion rate of 24 feet per year was used, and is based upon detailed mapping of the MRGO shoreline done by CEMVN, covering the time period between 1964 and 1996.

CLIMATE

The area climate of St Bernard Parish is subtropical. This climate is influenced by the water surfaces of nearby lakes, streams, and the Gulf of Mexico. Throughout the year, these water bodies modify the relative humidity and temperature conditions, decreasing the range between the extremes. Summers are long and hot with high humidity. The average daily temperatures range from 81°Fahrenheit (F) to the average daily maximum of 90°F. Winters are influenced by cold, dry polar air masses moving southward from Canada, with the average daily temperature of 53°F, and the average daily minimum of 43°F. Annual precipitation averages 55 inches. The area is frequented with tropical storms and hurricanes.

SOILS/GEOLOGY

The soil types found in the project area are Clovelly muck, Fausse clay, and Lafitte muck. Lafitte muck occurs in the interior area and along much of the MRGO shoreline. Clovelly muck occurs in a broad band along the Lake Borgne shoreline and along some of the MRGO shoreline. Fausse clay occurs only in the eastern and western extremes of the Lake Borgne shoreline.



Figure 3. MRGO Shoreline

SIGNIFICANT RESOURCES

This section contains a description of significant resources and the impacts of the proposed action on these resources. The significant resources described in this section are those recognized by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals, and the general public. Significant resources include: coastal marsh, fisheries, wildlife, endangered species, cultural and recreational resources, air quality, sediment, and water quality. In addition

to the significant resources mentioned above, habitat designated Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act of 1996 could be impacted by the proposed project.

COASTAL WETLANDS

Existing Conditions

This resource is institutionally significant because of: the Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968. Wetlands are technically significant because: they provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; serve as natural water filtration areas; provide protection from wave action, erosion, and storm damage; and provide various consumptive and non-consumptive recreational opportunities. Wetlands are publicly significant because of the high value the public places on the functions and values that wetlands provide.

The Lake Borgne and MRGO project areas are 100 acres and 365 acres in size respectively. The Lake Borgne study area is made up of 20 acres of open water, four acres of open water in side the marsh and 76 acres of salt marsh. The MRGO project area is comprised of 192 acres of open water and 173 acres of salt marsh. Salt marsh habitats are highly productive for a variety of estuarine and marine fish and invertebrate species, and provide a critical role in maintaining productivity of the estuarine ecosystem. Marsh habitat produces detritus, which through decomposition of the organic material, releases the constituent minerals and nutrients in a form utilized again by plants, plank tonic fauna, and larval stages of many aquatic organisms. During low tides, the marsh becomes exposed, allowing detritus material to be exposed to air, accelerating the decomposition process. During high tide periods, the marsh becomes inundated and accumulated nutrients are released, forming the base of a highly productive food chain. Fish and shellfish move into the flooded marsh areas, not only because of the availability of food, but also for use as spawning grounds and nursery areas. Coastal marsh is vital to the overall aquatic productivity of the area. The predominant vegetation in the salt marsh of the study area is smooth cord grass.

Future Conditions with No-Action.

Under the No-Action Alternative, the proposed action would not be built by CEMVN. Without the protection of the breakwaters, 249 acres of salt marsh in the project area would continue to erode over 20 years, until all the marsh is gone. Average Annual Habitat Units (AAHU's) were calculated using the Wetlands Valuation Assessment Model (WVA) to establish the No-Action benefit baseline. MRGO shoreline would continue to erode into the navigation channel, losing an estimated 173 acres over 20 years. The Lake Borgne shoreline would also continue to erode, losing an estimated 76 acres over 20 years.

Future Conditions with the Proposed Action.

With implementation of the proposed action, shoreline erosion rates in the project area would be decreased. Initially 249 acres of salt marsh would be protected. Over the 20-year life of the project some salt marsh would be lost from the area due to subsidence, sea level rise, and erosion. AAHU's were calculated using a WVA model to determine the benefits that would be obtained by constructing the breakwaters. If the proposed action were implemented, based on the results of the model, there would be a net gain of 70 AAHUs for both project areas, 37.7 AAHUs for the MRGO area, and 32.3 for the Lake Borgne area.

FISHERIES

This resource is institutionally significant because of the Magnuson Fishery Conservation and Management Act of 1976, as amended and the Fish and Wildlife Coordination Act of 1958, as amended. Fisheries resources are technically significant because: they are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of various freshwater and marine habitats; and many species are important commercial resources. Fisheries resources are publicly significant because of the high priority that the public places on their esthetic, recreational, and commercial value.

Recreationally and commercially important shellfish and finfish in the waters of the area include oysters, brown shrimp, white shrimp, blue crabs, menhaden, red drum (redfish), spotted sea trout (speckled trout), black drum, striped mullet, Gulf flounder, Gulf kingfish, and Atlantic croaker. Some of these species, such as spotted sea trout and black drum, spawn in the MRGO and in the deep bayous that enter the MRGO. Several areas within the vicinity of the proposed project are leased for the commercial harvesting of oysters.

Most of the estuarine species spawn offshore, and the larvae migrate either freely or by currents into the estuarine marshes. Once inshore, the larvae reside in the saline, intermediate, or brackish marshes, depending on the species' salinity tolerance and food availability. The interface between the marsh and the water's edge creates a habitat where larval and juvenile fishes can find cover, food, and favorable environmental conditions (water depth, temperature, dissolved oxygen, current speed, and turbidity). The interior marsh provides a stable habitat that resists fluctuating water levels, salinity, temperature, and water movement.

This stable nursery habitat allows species to maintain their position in the estuary until they become adults. The larvae of many species that spawn during the fall and winter months remain in the estuary throughout the spring and summer months. During the warmer months, larval and juvenile fish and shellfish species experience the most rapid growth. The marshes are critical to the successful completion of the life cycle of these species. Additionally, the detritus provided by these marshes forms the basis of the food chain for many fish and shellfish species.

The shallow estuarine open water habitat along Lake Borgne and the MRGO provides an interior habitat essential to fish, shellfish, and wildlife species. This area represents the nursery habitat for estuarine-dependent species, which utilize shallow open water for nursery grounds. Fish species such as menhaden favor shallow open water to flooded marsh for nursery grounds in

their larval and juvenile life stages. Much of the shallow estuarine open water offers refuge to fish, crabs, and shrimp when the water level drops causing these species to retreat from the flooded marsh to the remaining open water.

Many of the shallow estuarine ponds are isolated from adjacent water bodies. These ponds resist the fluctuating water levels, salinity, and temperature reflected in the adjacent water body. The salinity and temperature extremes experienced in isolated ponds, due to evaporation, rainfall, and sun radiation, however, may be much greater than those experienced by ponds which are connected to the adjacent water bodies by small natural marsh channels.

The MRGO channel has created an increase in the number of access points into the marshes for estuarine species. The access increase into the salt marsh habitat has benefited estuarine species, but the conversion of brackish and saline marsh to open water has reduced the amount of estuarine nursery habitat. Many larval fish and shellfish species travel this corridor from the Gulf of Mexico to the interior marsh habitats.

Water movement, from tidal fluctuation and ship wakes, has caused erosion along the banks of the MRGO. Bank erosion along the north bank of the MRGO has increased the number of shallow estuarine marsh ponds, further increasing the width of the channel. Interior marsh breakup is a result of increased water movement and subsidence. As the interior marsh breaks up, the amount of edge habitat available to estuarine species increases. However, as the breakup converts the interior marsh to open water, estuarine marsh habitat decreases.

Future Conditions with No Action

Under the No-Action Alternative, the proposed action would not be built by CEMVN. Without the protection of the breakwaters the salt marsh would continue to erode. Habitat will decrease over time.

Future Conditions with the Proposed Action

The shoreline protection is expected to preserve the marshland and areas of inter-tidal emergent vegetation. The wetlands protected would provide a diversity of habitat foraging, breeding, spawning, and cover habitat for a greater variety of adult and juvenile fisheries. Nutrients and detritus would be added to the existing food web, providing a positive benefit to local area fisheries. Access features would facilitate ingress and egress of various fisheries species to wetlands protected within the proposed areas.

ESSENTIAL FISH HABITAT

Existing Conditions

This resource is institutionally significant because of the Magnuson-Stevens Fishery Conservation and Management Act of 1996. Essential Fish Habitat (EFH) is technically significant because, EFH are “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” EFH is publicly significant because of the high value that the public places on the seafood and the recreational and commercial opportunities EFH provides. Specific categories of EFH include all estuarine waters and substrates (mud, sand, shell, rock, and associated biological communities), including the sub-tidal vegetation (sea grasses and algae) and adjacent inter-tidal vegetation (marshes and mangroves).

The Gulf of Mexico Fishery Management Plan (FMP) designates the fresh, estuarine, and marine waters in St. Bernard Parish as EFH. Several fisheries species are managed under the FMP occurring in St. Bernard Parish or adjoining waters include brown shrimp, white shrimp, red drum, gray snapper, and Spanish mackerel. In addition, coastal wetlands provide nursery and foraging habitat that supports economically important marine fishery species such as spotted sea trout, southern flounder, Atlantic croaker, gulf menhaden, striped mullet, and blue crab. These species serve as prey for Federally managed fish species such as mackerels, snappers, groupers, billfishes and sharks.

Future Conditions with No Action

Under the No-Action Alternative, the proposed action would not be built by CEMVN. Without the protection of the breakwaters the salt marsh would continue to erode. Habitat will decrease over time.

Future Conditions with the Proposed Action

The shoreline protection is expected to preserve the marshland and areas of inter-tidal emergent vegetation. The wetlands protected would provide a diversity of habitat foraging, breeding, spawning, and cover habitat for a greater variety of adult and juvenile fisheries. Nutrients and detritus would be added to the existing food web, providing a positive benefit to local area fisheries. Access features would facilitate ingress and egress of various fisheries species to wetlands protected within the proposed areas. Based on project discussions with the National Marine Fishers Service (NMFS), CEMVN will include fish dip openings in the breakwater along the MRGO to facilitate fish access and water exchange.

WILDLIFE

Existing Conditions

This resource is institutionally significant because of the Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918. Wildlife is technically significant because: they are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. Wildlife is publicly significant because of the high priority that the public places on their esthetic, recreational, and commercial value.

A variety of birds and a few mammal and reptile species are known to utilize wetland habitats within the project area. Bird species diversity varies seasonally, with highest diversity during spring and fall migrations. The lowest species diversity occurs during the summer breeding season, with low to moderate usage during the winter. White pelicans and a variety of seagulls and terns were observed within the project areas during the site visit. Wading birds observed included great blue heron, cattle egret, and glossy ibis, which utilize the area year-round for foraging. The interior marshes provide potential nesting and foraging habitat for other species such as mottled ducks, clapper rail, black-necked stilt, common yellowthroat, and seaside sparrow.

During the fall and winter months, the marshes and open-waters within the area potentially provide valuable foraging and resting habitat for migratory waterfowl. Early migrants include both green-wing teal and blue-wing teal, often common throughout the area by September. Later arrivals include mallard, American widgeon, gadwall, lesser scaup, and American coot. Waterfowl utilize the marsh and open-water habitats until the return migration in March.

Several mammal species can utilize shallow, open-waters within the terrestrial habitats. Potential species include bats, which forage on flying insects. Other mammalian species include marsh rice rat, muskrat, nutria, and rabbit. Atlantic bottle-nosed dolphins occur frequently in the MRGO as far north as Hopedale. Reptilian species include American alligator, diamondback terrapin, and a variety of snakes.

Future Conditions with No Action

Under the No-Action Alternative, the proposed action would not be built by CEMVN. Without the protection of the breakwaters the salt marsh would continue to erode. Habitat will decrease over time.

Future Conditions with the Proposed Action

The shoreline protection is expected to preserve the marshland and areas of intertidal emergent vegetation. The wetlands protected would provide a diversity of habitat foraging, breeding, nesting, and cover habitat. Nutrients and detritus would be added to the existing food web.

THREATENED OR ENDANGERED SPECIES

Existing Conditions

This resource is institutionally significant because of: the Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. Endangered (E) or threatened (T) species are technically significant because the status of such species provides an indication of the overall health of an ecosystem. These species are publicly significant because of the desire of the public to protect them and their habitats.

There are Federally listed, threatened (T) or endangered (E) species that occur, have

occurred, or might be expected to occur in the vicinity of the proposed action. Bald eagles (T) and brown pelicans (E) are known to utilize coastal regions of southern Louisiana. Individuals and flocks of brown pelicans have frequently been seen foraging from the Gulf of Mexico, north to Lake Borgne, and along the channel of the MRGO. The proposed disposal areas could potentially provide resting and foraging habitat for area pelicans. Kemp's ridley sea turtles (E), Atlantic green sea turtles (E), and loggerhead sea turtles (T) are frequently observed within coastal Louisiana as they forage in estuarine waters, and could potentially be found within the project area. The CEMVN has determined that this project is not likely to adversely impact these species.

Two species of concern are the West Indian manatee (E) and the Gulf sturgeon (T). Manatees have been sighted within the MRGO, and are known to travel long distances up coastal waterways from the Gulf of Mexico. On 9 July 2001, a manatee was observed passing safely through the Inner Harbor Canal Navigation Lock and into the Mississippi River. Manatees are usually within Louisiana coastal waterways only during the warm weather/warm water months. Biological Assessment (BA), "*Impacts of Navigational Channel Dredging on the Gulf Sturgeon*", dated 15 March 2001, report that no recent catches or sightings of Gulf sturgeon within the MRGO have been found in available resources. The Louisiana Department of Wildlife and Fisheries conducted studies in Louisiana coastal waters from 1990 to 1993. Reports of incidental catches and sightings of sturgeon show that Gulf sturgeon exists within several coastal waterways in southeast Louisiana, including Lake Borgne.

On March 19, 2003, the Fish and Wildlife Service and NOAA Fisheries published a final rule in the Federal Register (Volume 68, No. 53) designating critical habitat for the Gulf sturgeon in Louisiana, Mississippi, Alabama, and Florida. Portions of the Pearl and Bogue Chitto Rivers, Lake Pontchartrain east of the Lake Pontchartrain Causeway, all of Little Lake, The Rigolets, Lake St. Catherine, and Lake Borgne within Louisiana were included in that designation. The primary constituent elements essential for the conservation of Gulf sturgeon are those habitat components that support feeding, resting, sheltering, reproduction, migration, and physical features necessary for maintaining the natural processes that support those habitat components; those elements should be considered when determining potential project impacts.

The primary constituent elements for Gulf sturgeon critical habitat include: abundant prey items within riverine habitats for larval and juvenile life stages, and within estuarine and marine habitats for juvenile, sub-adult, and adult life stages; riverine spawning sites with substrates suitable for egg deposition and development, such as limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay; riverine aggregation areas, also referred to as resting, holding and staging areas, used by adult, sub-adult, and/or juveniles, generally, but not always, located in holes below normal river bend depths, believed necessary for minimizing energy expenditures during freshwater residency and possibly for osmoregulatory functions; a flow regime (i.e., the magnitude, frequency, duration, seasonality, and rate-of-change of freshwater discharge over time) necessary for normal behavior, growth, and survival of all life stages in the riverine environment, including migration, breeding site selection, courtship, egg fertilization, resting, and staging; and necessary for maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larvae staging; water quality, including temperature, salinity, pH, hardness, turbidity, oxygen content,

and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; sediment quality, including texture and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages; and safe and unobstructed migratory pathways necessary for passage within and between riverine, estuarine, and marine habitats (e.g., a river unobstructed by a permanent structure, or a dammed river that still allows for passage).

There is potential for manatees and sturgeon to be within the vicinity of the proposed project. The rock placement and dredging along Lake Borgne and MRGO shorelines will not impact enough habitat to adversely modify critical habitat to the extent it would jeopardize these species. To minimize impacts to the species the USFWS and the NOAA Fisheries have provided precaution recommendations that CEMVN will adhere to during project activities to reduce the potential of impacts.

Conditions to avoid impacts to manatees: All contract personnel associated with the project will be informed of the potential presence of manatees and the need to avoid collisions with manatees, which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. All construction personnel are responsible for observing water-related activities for the presence of manatee(s). Temporary signs will be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees during active construction/dredging operations or within vessel movement zones (i.e., work area), and at least one sign will be placed where it is visible to the vessel operator. Siltation barriers, if used, will be made of material in which manatees could not become entangled, and will be properly secured and monitored. If a manatee is sighted within 100 yards of the active work zone, special operating conditions will be implemented, including: no operation of moving equipment within 50 feet of a manatee; all vessels will operate at no wake/idle speeds within 100 yards of the work area; and siltation barriers, if used, will be re-secured and monitored. Once the manatee has left the 100-yard buffer zone around the work area on its own accord, special operating conditions are no longer necessary, but careful observations would be resumed. Any manatee sighting will be immediately reported to the U.S. Fish and Wildlife Service (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821).

Conditions to avoid impacts to sturgeon: The CEMVN would induce Gulf sturgeon to leave the immediate work area prior to dredging regardless of water depth or time of year. At the commencement of dredging, the bucket will be dropped into the water and retrieved empty one time. After the bucket is dropped and retrieved, a one-minute no dredging period will be observed. During this no dredging period, personnel will carefully observe the work area in an effort to visually detect Gulf sturgeon. If Gulf sturgeons are sighted, no dredging will be initiated until they have left the work area. If the water turbidity makes such visual observations impossible, dredging work will proceed after the one-minute no dredging period. If, at any time, more than fifteen minutes elapses without dredging, then the empty bucket drop/retrieval process will be performed again prior to initiating dredging.

During the winter, juvenile and adult Gulf sturgeon use estuarine and marine habitats for foraging activities. In spring sturgeon migrate to river mouths and upstream areas in search of spawning and resting habitat. In fall, after fasting all summer in the rivers, sturgeon migrate

back into the estuaries and marine habitats in search of suitable benthic prey species, which constitute their primary food source. To avoid impacts to the sturgeon during the fall and spring migrations the CEMVN will observe summer dredging windows and dredge from 1 May through 30 September only.

Future Conditions with No Action

Under the No-Action Alternative, the proposed action would not be built by CEMVN. Without the protection of the breakwaters the salt marsh would continue to erode. Habitat will decrease over time.

Future Conditions with the Proposed Action

The shoreline protection is expected to preserve the marshland and areas of intertidal emergent vegetation. The wetlands protected would continue to provide a diversity of habitat.

CULTURAL RESOURCES

Existing Conditions

This resource is institutionally significant because of: the National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979; as well as other statutes. Cultural resources are technically significant because of: their association or linkage to past events, to historically important persons, and to design and/or construction values; and for their ability to yield important information about prehistory and history. Cultural resources are publicly significant because preservation groups and private individuals support their protection, restoration, enhancement, or recovery.

From 1932 to 1998 approximately 450 to 890 feet of shoreline has eroded at the project area. Four archaeological sites have been recorded along the beach rim. The four-recorded sites are 16SB149, 16SB150, 16SB151 and 16SB47. Three of these sites were located as a result of a Phase 1 cultural resources survey conducted for the proposed FY98 Disposal Areas to be used in maintenance dredging of the MRGO. All of the sites are prehistoric shell middens. Preliminary shovel testing indicates that the pottery sherds found are both grog tempered and shell tempered representing at least a Plaquemine to Mississippian Cultural affiliation. The sherds from site 16SB47 date to as early as the Tchefuncte period but also represent the full cultural sequence extending to the Mississippian cultural period. This site also has mid nineteenth century to twentieth century artifacts as well. All of these sites require Phase 2 testing to determine their National Register Eligibility.

Future Conditions with No Action

The geologic examination of the Lake Borgne shoreline indicates that the shoreline of Lake Borgne has eroded from 450 to 900 feet in a 66-year period that spans from 1932 to 1998. This erosion will continue in the project area and over a period of time destroy the sites on shore.

Future Conditions with the Proposed Action

The proposed project plan of constructing a rock dike with an adjacent floatation channel for access will not impact any of the four archaeological sites located along the lake shore. On March 2, 2004, a CEMVN archaeologist and team consisting of two geologists and a project manager conducted probing in Lake Borgne to determine the boundaries of the archaeological sites. The team took Global Positioning System readings of the shell perimeter. This information was used by the project engineers and incorporated in the design to ensure that the archaeological sites would not be impacted by the construction activities. The detailed project plans indicating the location of the archaeological sites and the details of the construction plans will be submitted with this environmental assessment to the State Historic Preservation Officer for review. It is our recommendation that no further work is necessary for this project since the four archaeological sites have been avoided. The proposed rock dike construction will offer protection to the archaeological sites on shore.

RECREATIONAL RESOURCES

Existing Conditions

This resource is institutionally significant because of the Federal Water Project Recreation Act of 1965, as amended, and the Land and Water Conservation Fund Act of 1965, as amended. Recreational resources are technically significant because of the high economic value recreational activities and their contribution to local, state, and national economies. Recreation resources are publicly significant because of: the high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreation boat registrations in Louisiana.

The natural and recreational resources of the project area provide wide and varied opportunities for outdoor enjoyment. Recreational activities taking place in the MRGO, Lake Borgne and adjacent marshes, may include boating, hunting, fishing and natural and cultural study. The project area is located near the Biloxi Wildlife Management area, an area of vital importance as a fishery nursery ground, waterfowl wintering and hunting area. Recreational fishing is by far the most popular activity in the management area because of the access to water bodies, bayous, and the marsh. Small game hunting is also popular due to the abundance of habitat and the wide range of species available to the hunter.

Future Conditions with No Action.

Recreational use within the project area would continue at its present level. The marshes surrounding the project area provide numerous areas for hunting and fishing opportunities; however, over time these marshes would erode and subside, creating open-water areas. Continued marsh loss translates into less edge and estuarine marsh habitat available to fish. Lost nursery and breeding grounds translate into less productive fishing in the future.

Future Conditions with the Proposed Action.

The recreational environment in and around the project area would experience limited short-term disruption imposed by the physical size and working activities of the floating dredge facility. Dredging activities associated with construction of the flotation channels would increase turbidity in the area of work and in the vicinity of the discharge pipes. This turbidity will disrupt water-oriented recreational activity occurring within the vicinity; however, these adverse impacts would be temporary and short-lived.

Positive long-term benefits would be realized from the deposition of dredged material behind the rock dike bank stabilization structures. This area would accept the dredged material in its highly turbid form, thus reducing impacts to the waterway. In time, the proposed disposal site would become contiguous with the adjacent areas, and, if not further disturbed, volunteer upland vegetation would become established providing shelter and habitat for wildlife. Rock dike construction will reduce further bank erosion, and, at the same time create areas for fish habitat, breeding and feeding areas.

AESTHETIC RESOURCES

Existing Conditions

This resource's institutional significance is derived from laws and policies that affect visual resources, most notably the 1969 National Environmental Policy Act. The 1988 U.S. Army Corps of Engineers Visual Resources Assessment Procedure provides a technical basis for identifying the project's significant impacts. Public significance is based on expressed public perceptions and professional analysis of the projects visual impacts.

Primary interest emanates from the visual complexity surrounding the fragmented remote natural levee portion of an abandoned river distributary—a prime example of an ancient alluvial ridge undergoing gradual deterioration. A ridge predominately vegetated by live oak (some dying due to saltwater intrusion) that rises out of the marsh (which is representative of the remnants of the abandoned St. Bernard Subdelta of the Mississippi River) and the occasionally white-shelled Lake Borgne shoreline. Viewpoints into the visually complex ridges of the project area emanate from recreational boat traffic traveling Doullat's Canal—which bounds the project to the west—and Lake Borgne's southern shoreline. Viewpoints that provide some visual interest are based on the interplay of forms and textures occurring when manmade elements are contrasted by water, vegetation and changes in elevation from the water's edge to dry land.

Future Conditions with No Action

Without implementation of the proposed action, visual resources would evolve from as dictated by wave action causing shoreline erosion. This potential erosion could destroy portions of the already fragmented alluvial ridge resulting in the loss of the vegetation and cultural elements that provide an interesting visually complex environment.

Future Conditions with the Proposed Action

The eventual creation of marsh as sediment settles behind the proposed rock dike would benefit the existing visually complex ridges by providing vegetated depth to an otherwise narrow viewed stretch of Lake Borgne shoreline. The created marsh would also provide additional contrast in form and texture to the existing background as defined by the existing visually complex alluvial ridge. There may be some perceived visual disturbances as an unnatural rock dike structure is placed in front of somewhat naturally evolved shoreline but the visual benefits surrounding the rock dike bank stabilization structure's protection of the visually complex alluvial ridges—and the possible creation of marsh—far outweigh any perceived visual disturbances.

During construction activity, loud sounds and visual noise from dredging and disposal activities would temporarily affect aesthetic resources in an otherwise quiet remote area. These minor impacts will be of short duration and the project area should stabilize quickly.

AIR QUALITY

Existing Conditions

This resource is considered institutionally significant because of the Louisiana Environmental Quality Act of 1983, as amended, and the Clean Air Act of 1963, as amended. Air Quality is technically significant because of the status of regional ambient air quality in relation to the National Ambient Air Quality Standards (NAAQS). It is publicly significant because of the desire for clean air expressed by virtually all citizens.

St. Bernard Parish is currently classified in attainment of all NAAQS. This classification is the result of area-wide air quality modeling studies. The total volatile organic compound emissions for this project during construction is anticipated to be well below the de minimis level of 100 tons per year. Therefore, this action conforms to the Louisiana State Implementation Plan.

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The USACE is obligated under Engineer Regulation 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of the proposed action. Site visits were conducted on April 2 and October 29 of 2003. A HTRW Land Use History and a Phase I HTRW Initial Site Assessment (ISA) # 229 were completed for the proposed action on May 25, 2004 and are on file at the CEMVN. Based on results of the initial investigation, HTRW risk is low. No further HTRW investigation is warranted for the project.

CUMULATIVE IMPACTS

The CEQ Regulations define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or

person undertakes such other actions. Cumulative impact can result from individually minor, but collectively significant actions taking place over a period of time.”

The proposed action is expected to have long-term beneficial cumulative impacts. Protecting wetlands within the proposed areas improves the other significant resources described in this EA by the beneficial effects the proposed action would have. Protecting the shorelines and wetlands would provide valuable breeding, nesting, foraging, and cover habitat for a variety of fisheries and wildlife species. The net result would be sustaining bio-diversity and productivity.

COORDINATION

Preparation of this EA and a draft Finding of No Significant Impact (FONSI) was coordinated with appropriate Congressional, Federal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, are receiving copies of this EA and draft FONSI:

U.S. Department of the Interior, Fish and Wildlife Service
U.S. Environmental Protection Agency, Region VI
U.S. Department of Commerce, National Marine Fisheries Service
U.S. Natural Resources Conservation Service, State Conservationist
Advisory Council on Historic Preservation
Governor's Executive Assistant for Coastal Activities
Louisiana Department of Wildlife and Fisheries
Louisiana Department of Natural Resources, Coastal Engineering Division
Louisiana Department of Natural Resources, Coastal Management Division
Louisiana Department of Natural Resources, Coastal Restoration Division
Louisiana Department of Environmental Quality, PER-REGC
Louisiana Department of Environmental Quality, EP-SIP
Louisiana State Historic Preservation Officer

Recommendations of the U.S. Fish and Wildlife Service in accordance with the Fish and Wildlife Coordination Act.

Recommendation: Actions to be taken to avoid impacts to Manatees and Gulf sturgeon.

CEMVN Response: Actions recommended to avoid impacts to Manatees and Gulf Sturgeon were incorporated to the Threatened and Endangered Species section of this EA.

Recommendations of the National Oceanographic Atmospheric Administration, National Marine Fisheries Service.

Recommendation: The inclusion of fish dips to support the free movement and exchange of water and fish.

CEMVN Response: The incorporation of fish dips were added to the construction plan.

MITIGATION

No impacts have been identified that would require compensatory mitigation.

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

Environmental compliance for the proposed action would be achieved upon: coordination of this EA and draft Finding of No Significant Impact (FONSI) with appropriate agencies, organizations, and individuals for their review and comments; U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) confirmation that the proposed action would not be likely to adversely affect any endangered or threatened species; Louisiana Department of Natural Resources concurrence with the determination that the proposed action is consistent, to the maximum extent practicable, with the Louisiana Coastal Resources Program; receipt of a Water Quality Certificate from the State of Louisiana; public review of the Section 404(b)(1) Public Notice; signature of the Section 404(b)(1) Evaluation; Environmental Protection Agency concurrence with ocean disposal of dredged material in accordance with Section 103 of the Marine Protection, Research, and Sanctuaries Act (only applies to a proposed action which involves ocean disposal); receipt of the Louisiana State Historic Preservation Officer Determination of No Affect on cultural resources; receipt and acceptance or resolution of all USFWS Fish and Wildlife Coordination Act recommendations; receipt and acceptance or resolution of all Louisiana Department of Environmental Quality comments on the air quality impact analysis documented in the EA; and receipt and acceptance or resolution of all NMFS Essential Fish Habitat recommendations. The draft FONSI would not be signed until the proposed action achieves environmental compliance with applicable laws and regulations, as described above.

CONCLUSION

The proposed action is to place 18,820 linear feet of rock along the southern shore of Lake Borgne, and 14,360 linear feet of rock along the north shore of the MRGO. The purpose is to establish a breakwater to protect the shorelines from erosion. This office has assessed the environmental impacts of the proposed action and has determined that the proposed action would have no impact upon cultural resources and no significant impact on water bodies, wetlands, fisheries, essential fish habitat, wildlife, endangered or threatened species, recreational resources, or air quality.

PREPARED BY

EA # 402 and the associated draft FONSI were prepared by Rick Gatewood and Gib Owen, Environmental Managers, with relevant sections prepared by: Casey Rowe - HTRW; Joan Exnicios - Cultural Resources; and Richard Radford- Recreational/Aesthetics. Biologist Elizabeth Behrens coordinated section 7 consultations for Lake Borgne with the NMFS. Inquiries can be sent to the above at: U.S. Army Corps of Engineers, New Orleans District; Planning, Programs, and Project Management Division, CEMVN-PM; P.O. Box 60267; New Orleans, Louisiana 70160-0267.

LITERATURE CITED

Boesch, Donald F., *et al.* 1994. Scientific Assessment of Coastal Wetland Loss, Restoration and Management in Louisiana. Journal of Coastal Research, special issue No. 20, Louisiana State University, Baton Rouge, LA.

Dunbar, J.B., L.D. Britsch, and E.R. Kemp III. 1992. Land loss rates. Report 3, Louisiana coastal plain. US Army Corps of Engineers, Mississippi Valley Division, New Orleans District, LA.

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coast 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources, Baton Rouge, LA.

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1999. Coast 2050: Toward a Sustainable Coastal Louisiana, The Appendices. Appendix F – Region 4 Supplemental Information. Louisiana Department of Natural Resources, Baton Rouge, LA.